GOVERNMENT OF INDIA
ENVIRONMENT, FORESTS AND CLIMATE CHANGE
LOK SABHA

UNSTARRED QUESTION NO:1020
ANSWERED ON:22.11.2016
Impact of Glacier Retreat
Khadse Smt. Raksha Nikhil

Will the Minister of ENVIRONMENT, FORESTS AND CLIMATE CHANGE be pleased to state:

(a) whether the Government is assessing and understanding the Glacier mass balance and their contributions to the Indus river which is more critical than other basins towards the understanding of the impact of glacier retreat on the water cycle in northern India; and
(b) if so, the details and outcome thereof?

Answer

MINISTER OF STATE (INDEPENDENT CHARGE) FOR ENVIRONMENT, FOREST AND CLIMATE CHANGE

(SHRI ANIL MADHAV DAVE)

(a) and (b) As per study conducted by the Wadia Institute of Himalayan Geology on the mass balance and other aspects in the Pensilungpa Glaciers in Suru basin, Indus river catchment, the glaciers in the basin are retreating. For long term measurement of mass balance and other parameters, the Space Applications Centre (SAC) of Indian Space Research Organisation has carried out two projects viz., "Snow and Glacier Studies" and "Monitoring Snow and Glaciers of Himalayan Region (Phase-II)". One of the components of these projects relates to estimation of glacier mass balance using multi-date satellite data. Under these two projects glacier mass balance was estimated based on analysis of multi-date satellite data using Accumulation Area Ratio (AAR) approach. Glacier specific mass balance has been estimated for glaciers in 9 sub-basins viz., Nubra, Zanskar, Warwan, Bhut, Chandra, Bhaga, Miyar, Parbati, Baspa of the Indus basin. Observations indicate overall positive mass balance at sub-basin level for Indus basin. Results of the study are given in the table below:

Table: Indicative Specific Mass Balance (SMB) in cm for selected glaciers studied in 9 sub-basins of Indus basin during 2008 to 2013
Units in Centimeter

Sub-basin	2008	2009	2010	2011	2012	2013
Nubra	1.57	87.33	66.76	68.88	42.98	23.32
Zanskar	#	#	54.59	32.61	13.57	13.05
Warwan	-32.3	66.51	14.21	25.61	58.93	28.55
Bhut	-2.43	37.12	16.22	10.84	14.9	41.77
Chandra	7.14	45.23	81.8	107.67	45.38	26.87
Bhaga	49.61	84.01	19.84	81.22	50.86	74.87
Miyar	-31.88	-17.25	51.44	30.03	20.01	-29.37
Parbati	0.56	50.89	52.84	57.43	9.02	56.35
Basapa	-51.26	-11.3	48.12	5.49	-36.54	#

Could not be studied due to cloud cover

****